

REMARKS

Upon entry of this amendment, claims 1-15, 18, 20-26, 28, 29 and 33 are all the claims pending in the application. Claims 16, 17, 19, 27 and 30-32 have been canceled by this amendment, and claim 33 has been added. Applicants note that claims 11, 14, 18, 21, 22, 24, 28 and 29 are withdrawn from consideration as being directed to a non-elected invention. It is noted that new claim 33 is directed to the elected invention.

Regarding the specification, Applicants note that a number of editorial amendments have been made thereto for grammatical and general readability purposes. No new matter has been added.

I. Objection to the Drawings

The Examiner has objected to the drawings for the reasons set forth on page 2 of the Office Action. In particular, the Examiner has indicated that several components in the drawings would not be able to be recognized by those of ordinary skill in the art without consulting the specification.

In order to overcome this objection, Applicants are submitting herewith replacement sheets for Figs. 1, 9, 12, 13 and 16 which identify the components in the drawings which may not be easily recognized by those of ordinary skill in the art. Accordingly, Applicants kindly request that the objection be reconsidered and withdrawn.

II. Objection to the Claims

The Examiner has objected to claims 12 and 15 for the reasons set forth on page 2 of the Office Action. In particular, the Examiner has indicated that claims 12 and 15 should not depend from claims 11 and 14, respectively. By this amendment, Applicants note that claims 12 and 15

have been amended so as to depend from claim 2. Accordingly, Applicants respectfully request that the objection to claims 12 and 15 be reconsidered and withdrawn.

III. Claim Rejections under 35 U.S.C. § 102

Claims 1-10, 12, 16, 17, 23, 25, 26 and 31 were rejected under 35 U.S.C. § 102(e) as being anticipated by Sawyer (U.S. 2003/0025841).

Claim 1, as amended, recites that the image rejection mixer is operable to generate a signal having an intermediate frequency, the intermediate frequency being a difference between a frequency of the signal output by the variable frequency oscillator and a frequency of the high frequency signal received by the input terminal, wherein the filter is operable to pass a frequency lower than a predetermined cutoff frequency, and wherein the predetermined cutoff frequency is a frequency not higher than a frequency higher than a third harmonic frequency of the variable frequency oscillator by approximately the intermediate frequency. Applicants respectfully submit that Sawyer does not disclose or suggest at least this combination of features in claim 1.

Regarding Sawyer, Applicants note that this reference discloses a tuner 10 that is used for receiving television or other multimedia signals (see Fig. 6). As shown in Fig. 6, the tuner 10 includes an input multiplexer 101, a variable attenuator 102, a TLNA 103, a filter 104, an image rejection mixer 105, and a first intermediate frequency filter 106 (see the left hand side of Fig. 6).

In Sawyer, the output of the filter 106 is supplied to an amplifier 107, which is in turn supplied to a second intermediate frequency filter 109, and the output of the filter 109 is supplied to an amplifier 115 (see paragraphs [0083] and [0085]). The output of the amplifier 115 is connected to a second image rejection mixer, the second image rejection mixer including a local

oscillator 114, I and Q mixers 116, I and Q gain stages 117, phase shifters 118, amplifiers 119 and a summer 120 (see Fig. 6 and paragraph [0085]).

As noted above, claim 1 has been amended to recite that the image rejection mixer is operable to generate a signal having an intermediate frequency, the intermediate frequency being a difference between a frequency of the signal output by the variable frequency oscillator and a frequency of the high frequency signal received by the input terminal, wherein the filter is operable to pass a frequency lower than a predetermined cutoff frequency, and wherein the predetermined cutoff frequency is a frequency not higher than a frequency higher than a third harmonic frequency of said variable frequency oscillator by approximately the intermediate frequency.

In the Office Action, the Examiner has taken the position that the filter 106 of Sawyer corresponds to the “filter” as recited in claim 1, that the local oscillator 114 of Sawyer corresponds to the “variable frequency oscillator” as recited in claim 1, and that the second image rejection mixer of Sawyer corresponds to the “image rejection mixer” as recited in claim 1.

Regarding the filter 106, local oscillator 114, and the second image rejection mixer of Sawyer, Applicants note that while the filter 106 is described as being a bandpass filter having a passband from 1.1 to 1.4 GHz (see Fig. 6), that the filter 106 is not described as having a cutoff frequency with a particular relationship to the third harmonic of the local oscillator 114 and the frequency of a signal generated by the second image rejection mixer.

In particular, in Sawyer, Applicants respectfully submit that there is no disclosure or suggestion that a cutoff frequency of the filter 106 is designed relative to a third harmonic frequency of the oscillator 114 such that the filter 106 passes a frequency lower than a

predetermined cutoff frequency, the predetermined cutoff being a frequency not higher than a frequency higher than a third harmonic frequency of the local oscillator 114 by approximately an intermediate frequency, the intermediate frequency being the frequency of a signal generated by the second image rejection mixer.

In view of the foregoing, Applicants respectfully submit that Sawyer does not disclose, suggest or otherwise render at least the above-noted combination of features recited in claim 1 of an image rejection mixer being operable to generate a signal having an intermediate frequency, the intermediate frequency being a difference between a frequency of the signal output by the variable frequency oscillator and a frequency of the high frequency signal received by the input terminal, wherein the filter is operable to pass a frequency lower than a predetermined cutoff frequency, and wherein the predetermined cutoff frequency is a frequency not higher than a frequency higher than a third harmonic frequency of the variable frequency oscillator by approximately the intermediate frequency. Accordingly, Applicants submit that claim 1 is patentable over Sawyer, an indication of which is kindly requested.

Claims 2-10, 12, 23, 25, 26 and new claim 33 depend from claim 1 and are therefore considered patentable at least by virtue of their dependency.

Further, regarding non-elected claims 11, 14, 18, 21, 22, 24, 28 and 29, Applicants note that these claims also depend from claim 1 and are therefore considered patentable at least by virtue of their dependency.

IV. Claim Rejections under 35 U.S.C. § 103(a)

A. Claim 13 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Sawyer in view of Vorenkamp et al. (U.S. 7,092,043).

Claim 13 depends from claim 1. Applicants submit that Vorenkamp fails to cure the deficiencies of Sawyer, as discussed above, with respect to claim 1. Accordingly, Applicants submit that claim 13 is patentable at least by virtue of its dependency.

B. Claim 15 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Sawyer in view of Kitaguchi (U.S. 6,594,477).

Claim 15 depends from claim 1. Applicants submit that Kitaguchi fails to cure the deficiencies of Sawyer, as discussed above, with respect to claim 1. Accordingly, Applicants submit that claim 15 is patentable at least by virtue of its dependency.

V. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may best be resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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